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de Jong, A.; Veld, C.H.

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AN EMPIRICAL ANALYSIS OF INCREMENTAL CAPITAL STRUCTURE DECISIONS UNDER MANAGERIAL ENTRENCHMENT

by

Abe de Jong[†] and Chris Veld[‡,*]

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† Corresponding author. Abe de Jong is a Ph.D. student at the Department of Business Administration and CentER at Tilburg University, P.O. Box 90153, NL-5000 LE Tilburg, the Netherlands. Tel: +3113-4662020; fax: +3113-4662875; e-mail: Abe.deJong@kub.nl

‡ Chris Veld is an Associate Professor at the Department of Business Administration and CentER at Tilburg University. Part of the research for this project was carried out when Chris Veld was affiliated with the Faculty of Management at the McGill University in Montreal as a Visiting Associate Professor.

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Abstract

We study incremental capital structure decisions of Dutch companies. From 1977 to 1996 these companies have made 110 issues of public and private seasoned equity and 137 public issues of straight debt. Managers of Dutch companies are entrenched. For this reason a discrepancy exists between managerial decisions and shareholder reactions. Confirming Zwiebel (1996) we find that Dutch managers avoid the disciplining role of debt allowing them to overinvest. However, the market reactions show that this overinvestment behavior is recognized. Our findings also confirm the signalling model of Ross (1977) and the static trade-off model. We do not find a confirmation of the adverse selection model of Myers and Majluf (1984). This is probably due to the entrenchment of managers and the prevalence of rights issues.

1. Introduction

A question that has received a lot of attention in the corporate finance literature is why some firms choose to issue equity while others decide to issue debt. Closely related to this subject is the topic of wealth effects. It is generally known that the wealth effects, or abnormal returns, differ between securities. In this paper we study the debt-equity choice and the wealth effects of this choice for the 110 issues of public and private seasoned equity and 137 public issues of straight debt made by Dutch companies from 1977 to 1996.

The debt-equity choice can be explained by static and dynamic capital structure theories. According to the static trade-off theory firms have an optimal capital structure. In this framework the optimal capital structure is determined by the tax structure, the costs of bankruptcy, and agency problems. Important dynamic capital structure models are the signalling model of Ross (1977), the adverse selection model of Myers and Majluf (1984), and the moral hazard models of Jensen (1986) and Zwiebel (1996). In the signalling model of Ross (1977) managers know the true distribution of firm returns, but investors do not. If the securities of the firm are valued more highly by the market managers benefit. If the firm goes bankrupt managers are penalized. In this model higher debt levels are taken as a sign of higher quality by investors. The adverse selection model of Myers and Majluf (1984) shows the impact of asymmetric information in case investors are less informed about the value of the firm than insiders. This gives rise to the underinvestment problem. The firm will not carry out a project with a positive NPV if the underpricing of the equity, caused by the asymmetric information, will be higher than the value of the project. In order to avoid this problem the firm will use a pecking order of funds in which the least risky form of financing is preferred. A number of factors influence the findings of the adverse selection model. Myers and Majluf (1984) argue that financial slack induces debt, Krasker (1986) concludes that relative issue size leads to a preference for debt, Lucas and McDonald (1990) find that a stock price run-up induces equity and Cooney and Kalay (1993) find that growth opportunities induce equity. In the model of Jensen (1986) moral hazard problems determine the choice for debt or equity. He explains that firms may engage in projects with negative NPV, because managers pursue growth. This overinvestment problem can be overcome by using debt instead of equity. In the model of Zwiebel (1996) managers only issue debt if they are forced by a discipliner. This discipliner is partially limited by managerial entrenchment. Managers trade off empire building and the possibility to retain control. Empire building is constrained by a take-over and by the use of debt. The latter is accomplished through the threat of a bankruptcy.

Empirical studies on the debt-equity choice consist of studies that look at motives for the choice between equity and debt and studies in which the wealth effects for this choice are investigated. Recent studies on motives for the debt-equity choice are only available for the United States. Opler and Titman (1997) study the security issue decision by regressing leverage ratios from a sample of Compustat firms

on variables used in earlier cross-sectional studies. The predicted debt ratio from the regression is used as a proxy for the firm's target ratio. Opler and Titman (1997) find that firms move towards a target ratio when they change their capital structure. Bayless and Chaplinsky (1991) and Jung, Kim and Stulz (1996) carry out logistic regressions to examine the security issue decision. Bayless and Chaplinsky (1991) find that slack and a large relative issue size induce debt and that an abnormal positive stock price performance induces equity. These facts can all be considered as evidence for the adverse selection model. Jung, Kim and Stulz (1996) find that growth opportunities and an abnormal positive stock price performance induce equity and that a relative large issue size induces debt. This can also be considered as evidence for the adverse selection model. Besides that, Jung, Kim and Stulz (1996) find that companies that issue equity against type have poor investment opportunities. This can be considered as evidence for the moral hazard model. Berger, Ofek and Yermack (1997) study the relationship between leverage changes and managerial entrenchment reducing shocks. Leverage changes are based on the annual flow of funds data from Compustat. They find that leverage increases after managerial entrenchment reducing shocks. These shocks consist of unsuccessful tender offers, involuntary CEO replacements and the addition to the board of major stockholders. This result of Berger, Ofek and Yermack (1997) is consistent with entrenched managers seeking to avoid debt.

The wealth effects of security issues have extensively been studied for the United States. Review studies by Smith (1986) and Eckbo and Masulis (1995) present the following results. Common stock issues are associated with significant negative abnormal returns. Issues of convertible bonds are also associated with negative abnormal returns, though the stock price decline is smaller than the stock price decline associated with the issuance of common stock. Issues of straight debt are not associated with an abnormal return. These results suggest a confirmation of the pecking order model[1]. Pilotte (1992) and Denis (1994) study the effect of growth opportunities on the abnormal returns of equity issues. They find a positive relationship between the announcement effects and the existence of growth opportunities. Other studies investigate the relationship between the announcement effects and the choice of the flotation method. Eckbo and Masulis (1995) show a large difference in abnormal returns for US industrial firms that issue equity under different flotation methods. The authors document a negative abnormal return of -3.1% for firm commitment offers, -1.5% for rights offers with a standby agreement, and -1.4% for rights offers without such an agreement. The more positive receipt of rights offers is confirmed by Bøhren, Eckbo and Michalsen (1997) who find a positive abnormal return for rights offers in Norway.

[1] Studies on announcement effects of stocks and hybrid debt for Japan give different results. Kang and Stulz (1996) and Kang, Kim, Park and Stulz (1995) study announcement effects of stocks, convertible bonds and warrant-bonds issued by Japanese companies. They find non-significant or sometimes even significantly positive abnormal returns. They attribute these abnormal returns to corporate governance differences between Japan and the United States.

In this paper we study issues of stocks and bonds by Dutch companies. These companies form a particular interesting case because a number of studies have shown that, unlike managers of American companies, Dutch managers are entrenched. Kabir, Cantrijn and Jeunink (1997) find that practically all Dutch companies have adopted multiple takeover defenses. They argue that these measures are primarily directed to limit the power of common shareholders. La Porta, Lopez-de- Silanes, Shleifer and Vishny (1998) study shareholder rights in different countries. They develop an index aggregating shareholder rights which are labeled as "anti-director rights". Based on the calculation of this index for 27 countries, La Porta, Lopez-de-Silanes and Shleifer (1998) conclude that the Netherlands belong to the group of low shareholder rights. Cools (1993), who interviewed the Chief Financial Officers of 50 large Dutch firms, finds that for 38% of the firms, shareholders play no role at all or are ranked as the least important stakeholder. He contributes this to the Dutch institutional setting that has *robbed the shareholder of Dutch corporations virtually all his voting power and control over the company* (see Cools, 1993, page 264). The conclusion that can be drawn from these studies is that Dutch managers enjoy a lot of freedom in taking finance decisions. Because of the entrenched managers a discrepancy can be expected between managerial motives and shareholder wealth implications. The reason for this is that shareholders in the Netherlands are hardly able to discipline managers. On the other hand, shareholders are able to judge managerial decisions. This judgement will show up in the wealth effects of the security issues. The difference in institutional setting between the Netherlands and the United States also makes it possible to study the performance of the adverse selection model. This model is strongly confirmed for the United States. However, a priori it can be expected that this model will be less relevant for the Netherlands. Because of the entrenched managers it is not likely that the assumption of managers acting in the interest of the existing shareholders will be fulfilled. Another reason for the adverse selection problem to be less relevant for the Netherlands is the dominance of rights issues in the Netherlands. If companies use rights issues, a possible underpricing of the shares will be reflected in the value of the rights that are distributed to the same group that holds the existing shares. This a priori makes the adverse selection model less relevant.

Our sample of 110 issues of public and private equity by Dutch companies and 137 public issues of straight debt by Dutch companies gives the following results. The tests of the models for the debt-equity choice provide a confirmation of the static trade-off theory. The static trade-off theory is tested by making a comparison between the target capital structure and the actual capital structure. Following Opler and Titman (1997) we first regress equity ratios for a sample of Dutch firms on variables used in earlier cross-sectional studies. The determinants are chosen to represent the static trade-off theory and include the firm's tax structure and bankruptcy risk and costs. We use the predicted debt ratio from this first stage regression as a proxy for the firm's target ratio. The deviation of the actual target ratio from this target ratio is included in the logit regression. As this deviation has a significantly positive coefficient, we find a

confirmation of the static trade-off theory. With respect to the dynamic models we find a positive relationship between profitability and the issuance of debt. This confirms the theory of Ross (1977) that debt is used as a signal for quality. Following our expectations we do not find evidence for the adverse selection model. Slack, relative issue size, growth opportunities and asymmetric information are not significant, or they give the opposite sign compared to the hypothesis. We do find that Dutch companies issue equity after a period of positive abnormal returns. We also find confirmation for the theory of Zwiebel (1996) that managers try to avoid debt. The results show that managers avoid debt when it has the largest disciplinary power, i.e. in case of low profitability. A study of the wealth effects of the security issues shows that the issuance of debt is associated with an insignificant abnormal return of 0.51% and that an equity issue is associated with a significant negative abnormal return of -1.07%. These results are in accordance with the signalling and moral hazard models. A further analysis is carried out to distinguish between these models. This analysis shows that 19 Dutch companies announce the equity issue together with the news that the company has just completed an acquisition. These equity issues are associated with a significant positive abnormal return of 2.08%. In 16 cases the issuing company indicates that it will use at least part of the funds for future, yet unspecified, acquisitions. These equity issues are associated with a significant negative abnormal return of -2.72%. The difference in announcement effects on an equity issue together with a completed acquisition and an equity issue to be used for future acquisitions can be interpreted as evidence for the moral hazard model. A regression of the abnormal returns on the determinants of the returns leads to further evidence for the moral hazard model. In addition it gives evidence for the signalling model. Following our expectations we do not find evidence for the adverse selection model.

The remainder of this paper is organized as follows. In section 2 the security issue decision is studied. In section 3 we study the wealth effects that are a result of the firms choice. A summary and conclusions are presented in section 4.

2. The security issue choice

2.1 Theory on the debt/equity choice: hypotheses

According to the static trade-off theory firms have an optimal capital structure, i.e they aim for a target level of equity or debt to total capital. In the static trade-off framework the optimal capital structure is determined by the tax structure, the costs of bankruptcy, and agency problems. If this theory would fully explain the choice between debt and equity in case firms raise new capital, firms will tend to move

towards the optimal capital structure.[2] *(H1: If the actual equity ratio is below the target equity ratio firms issue equity.)*

An alternative motivation for the debt-equity choice is based on dynamic aspects in adverse selection agency theory. Ross (1977) describes a model in which debt is used as a signal for quality. Managers' wealth is positively affected by the value of the firm according to the investors and negatively by expected bankruptcy costs. Profitable firms will signal value with debt. *(H2: Profitability induces debt.)*[3]

Myers and Majluf (1984) describe an adverse selection model. They discuss the impact of asymmetric information in case investors are less informed about the value of the firm than insiders. In this case equity may be mispriced. If the firm has a project with a positive NPV available, the underpricing of the equity may be higher than the value of the project, and it will be passed. The *underinvestment* problem can be overcome by using a less risky form of financing. For this reason firms have a preference to maintain slack in order to have internal funds available for valuable projects. After internal funds, debt is preferred to outside equity. The ordering of preferences is called the pecking order, and hypothesizes that debt would be preferred over outside equity. However, several factors influence this finding. First, as the model is driven by information asymmetries, a reduction of the lack of information to investors may decrease the mispricing. Similar, if the activities of the firms induce to a lesser extent information problems, mispricing may be lower. *(H3: Asymmetric information induces debt.)* Second, with respect to the debt/equity choice, the presence of slack increases adverse selection costs and makes an equity issue costly. *(H4: Slack induces debt.)* Several authors have presented additional factors that influence the findings of Myers and Majluf. In the model of Krasker (1986) the insiders choose the size of the issue (i.e. the size of the investment project). The decrease in the stock price due to the mispricing will increase with the issue size. For this reason, the larger the issue the less likely it is to be equity. *(H5: Issue size induces debt.)* Lucas and McDonald (1990) construct a model in which firms 'time' equity issues and information asymmetries are temporarily. Undervalued firms will wait until the mispricing is reduced. The

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[2] There is no distinct separation between the determinants of the optimal capital structure and the determinants of the debt/equity choice. However, according to theory, several variables specifically influence the marginal costs and benefits of debt versus equity in the firm's capital structure. Empirical studies use these determinants of the optimal capital structure, assuming that if a firm has more advantages of debt, it is also more likely to issue debt and vice versa. This is contradictory to the static trade-off model.

[3] It is important to notice two alternative explanations of profitability inducing an issuance of debt. First, Leland and Pyle (1977) develop a signalling model in which risk-averse managers signal quality with debt. Second, according to Opler and Titman (1997) firms with a history of profits may generate equity internally. Therefore, the actual equity ratio may increase relative to the target equity ratio. In this static model it is optimal to issue debt for profitable firms.

model implies that firms issue equity after a period of positive abnormal returns, in which the underpricing has disappeared. *(H6: Stock price run-up induces equity.*) Cooney and Kalay (1993) re-examine the model of Myers and Majluf and allow firms to have projects with positive and negative NPVs. For firms with positive NPV projects the negative aspects of an equity issue may be overwhelmed by the good news of the acceptance of the project. According to this result, the costs of asymmetric information in an equity issue can be reduced by the expected profits of the project. The expected profits of new projects are reflected in the value of the firms growth opportunities, i.e. its Tobin's Q.[4,5] *(H7: Growth opportunities induce equity.)*

Finally, moral hazard problems may determine the choice for debt or equity. Jensen (1986) explains that firms may engage in projects with negative NPV, because managers aim for growth of the firm. Debt disciplines the *overinvestment* behavior. For firms with large free cash flow[6] *and* low growth opportunities this problem is relevant. These firms are expected to issue debt (*H8: Lack of growth opportunities and free cash flow induce debt*). Note that the hypothesis seems similar to the combination of H4 and H7. However both theoretical and empirical implications are different. Jensen discusses overinvestment behavior in a situation with excess capital for investments, while the discussions based on Myers and Majluf deal with underinvestment due to limited provision of capital. The empirical implications for overinvestment require the combination of cash and low growth prospects. In the underinvestment problem both cash and (a lot of) growth opportunities (with a non-penalized debt or equity issue) can overcome underinvestment.[7] Zwiebel (1996) argues that Jensen's theory requires a disciplinary device that forces managers to use debt. Zwiebel describes a model in which pressure on managers to commit voluntarily to debt is derived from the constant pressure of a potential discipliner. This pressure is partially limited due to managerial entrenchment. Managers make a trade-off between

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[4] Viswanath (1993) extends the Myers and Majluf model into a multi period model and confirms the hypothesized influence of asymmetric information (H3), a stock price run-up (H6) and of growth opportunities (H7). In this model stock price run-up approximates the release of information about the firm's growth opportunities.

[5] Eckbo and Masulis (1992) argue that the adverse selection problems can be mitigated by the choice of flotation method. In a rights offering all shares may end up in the hands of the existing shareholders, therefore adverse selection between existing shareholders and new shareholders may become irrelevant. In a rights issue the adverse selection arises by the ratio of shares bought by existing shareholders to shares bought by new shareholders. It should be emphasized that the flotation method does not influence the debt-equity choice.

[6] The difference between free cash flow and slack is important. Free cash flow is the cash flow that remains after all positive NPV projects are undertaken (Jensen, 1986). Slack is cash, liquid assets and unused borrowing power (Myers and Majluf, 1984).

[7] See also Stulz (1990).

expanding their empire and retaining control. Empire building is constrained by a take-over and by debt. The constraint by debt is accomplished through the threat of a bankruptcy, and the associated loss of entrenchment. However, in the Netherlands the likelihood of a hostile take-over is negligible, and managers are expected to avoid debt if the possibility of a bankruptcy is smaller *(H8a: Threat of bankruptcy (i.e. inverse of profitability) induces equity)*. The hypotheses in this sub-section are summarized in table 1.

[Please insert Table 1 here]

2.2 Data description

Our analysis concerns firms in the data set of the Dutch Central Bureau of Statistics containing data of listed non-financial firms with annual reports since 1974. We study primary issues of stocks and issues of new bonds by listed non-financial Dutch companies, which are made from January 1, 1977 to December 31, 1996. The issues are identified from two sources. Issues of shares and issues of domestic bonds are included in the monthly bulletin of the Dutch Central Bureau of Statistics (*Maandstatistiek Financiewezen CBS*). Issues of foreign bonds and Eurobonds can be identified from the quarterly review of the Dutch Central Bank (*Kwartaalberichten Nederlandsche Bank*). During this period a total of 110 public and private issues of common or preferred stock can be identified. These issues do not include initial public offerings. Besides that we can also identify 137 issues of straight debt in the same period. For the issues to be included, at least one book year has to be available, before the book year in which the offering took place. The stock prices of the firms are obtained from Datastream. The market index chosen is the Datastream index for the Dutch market, since this is the only index for which data are available for the whole sample period.

In the Netherlands some large firms issue debt or equity relatively frequent. Three firms have more than 20 issues in the 20-year period, and they account for 7% of the equity issues and 53% of the debt issues. In total seven firms have made more than 10 security issues each. The issues of these firms represent 24% of the equity issues and 77% of the debt issues.

2.3 Proxies

In order to investigate the motives for the choice for debt and equity we compare the characteristics of firms in the group of equity-issuers versus the group of debt-issuers. The characteristics are based on annual report data for the end of the book year before the issue[8]. In most proxies variables are taken relative to the firm's book value, instead of the market value. We have three reasons to do so. First,

[8] In general a book year is from January until December. However, some firms have book years that start in February, April, July, or December.

managers consider book values in decision-making. Second, as the stock price run-up is expected to be an important discriminating variable this has impact on the market value of firms. Third, other studies generally use book values. By using book values we are able to compare our results with these results for earlier studies. The variables that are used in the analysis are related to the hypotheses mentioned in the previous section.

Deviation from target capital structure. In order to test the static trade-off theory, we have to compare the target capital structure with the actual capital structure. Unfortunately, only the actual debt or equity ratio is observable, while the target ratio is unobservable. The first possible approach is to approximate the target debt or equity ratio by its long term average. In this approach it is assumed that the target ratio is relatively stable over time, and that the actual ratio fluctuates around it. Opler and Titman (1997) suggest an alternative approach. They use a cross-section of firms to estimate the determinants of the actual debt ratio. In doing so they assume that the estimates perfectly determine the target debt ratio, and that the residual is the deviation from target. In our study we use both approaches. We use market and book values for both approaches. Following Marsh (1982) and Mackie-Mason (1990) we measure the long term average over the 10-year period preceding the year in which the actual equity ratio is measured. As our data-set only goes back to 1974 this is not always possible. In such a case we use later years. The market value of equity is calculated as the number of outstanding shares multiplied by the stock price at the end of the year preceding the issue. The market value of debt is assumed to be equal to its book value. In order to calculate the expected equity ratio we estimate the determinants of the optimal equity ratio from a cross-section of firms. The expected equity ratio is the sum of the products of the coefficients for the determinants and the actual firm characteristics. The difference between the expected and the actual equity ratio is the residual in the regression. The determinants are chosen to represent the static trade-off theory and include the firms tax structure and bankruptcy risk and costs. The cross-sectional regressions are included in Appendix 1.

Profitability. We measure profitability as operating income over total assets (ROA). Total assets are measured in book values. We also use an alternative proxy for profitability (earnings before depreciation, interest and taxes over total assets) but do not report the results here because our conclusions are insensitive to the choice of proxy.

Slack. Slack is measured as the sum of cash and liquid assets divided by the book value of the firm. Liquid assets are the securities that the firm holds as investments.

Free cash flow. Following Lehn and Poulsen (1989) we measure free cash flow as operating income minus taxes, interest expenditures and dividends paid, divided by the market value of equity. Alternative proxies are the use of sales as denominator and the firm's cash flow over total assets. The results for the alternative proxies are not presented as they give similar results.

Issue size. Issue size is included as the issue size divided by the total assets (in book values). It is

also included as the log of the issue size.

Stock price run-up. The stock price run-up is measured as the stock return minus the market return over a period of 12 months preceding the issue. The 6-month stock price run-up gives comparable results as the 12-months run-up. For this reason the results of the 6-month run-up are not reported here.

Growth opportunities. Empirical studies generally measure growth opportunities by Tobin's Q. As Tobin's Q is not directly observable, most studies proxy Tobin's Q by the market-to-book ratio. In this study we use a more precise estimate of Tobin's Q. This approximation is described by Perfect and Wiles (1994). They define Tobin's Q as the market value of equity plus the book value of debt divided by the replacement value of the assets. In the Netherlands firms either present replacement values directly in their annual reports, or they present historical costs. If a replacement value is presented it equals the book value of total assets. In case of historical costs we have to adjust the value to approximate the replacement value. This is relevant for plant and equipment. We assume that in a base year the replacement value equals the historical costs. For each year's next year we adjust this replacement value by adding new investments and the growth in capital good prices and by subtracting depreciation. The base year is 1974 or the first year for which firm data are available. Growth in capital good prices is based upon the price index of investment goods, as provided by the Dutch Central Bureau of Statistics. The replacement value of the assets is the book value of assets plus the difference between the replacement value and historical value of plant and equipment.[9,10]

Other. While the previous variables were based on sound theoretical arguments, several variables are often used in other studies and prove to be relevant, but are not explicitly based on theory. We include a dummy for firms that frequently issue new capital on the public market. The dummy frequency has a value of one for firms that have more than 10 issues in the twenty-year period, and zero otherwise. Firm size is often found to be an important variable. We measure size by the book value of the total assets. Variables from the static trade-off theory, that are also variables in dynamic models are often included in empirical studies. Opler and Titman (1997) state that this leads to a misspecification of the empirical model. For this reason these variables are not included in the logit regressions.

2.4 Results

In Table 2 we present the characteristics of firms that issued equity versus firms that issue debt.

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[9] We also calculated the market-to-book ratio of total assets. This measure is found to be highly identical to our measure for Tobin’s Q.

[10] Note that the market value of a firm consists of assets in place and growth opportunities. Tobin's Q reflects the relative importance, but a stock price run-up is also related to this. An increase in stock prices, with a constant value of assets in place, represents the market's recognition of the existence of future valuable projects (see Viswanath, 1993).

[Please insert Table 2 here]

In table 2 the difference of the actual equity ratio from the target ratio is presented. If the book values are first considered, it can be seen that the average difference between the target equity ratio, according to the cross-sectional regression, and the actual equity ratio is 0.058. This implies that the target was above the actual level of equity and that the new equity moves the firm towards its target. For the debt issuers the average is 0.019. As this is positive the firms are expected to issue equity. However, the deviation is much smaller than for equity and this difference is significant at the 1% level. If we use the long term average as an approximation of the target, the results are similar, but less significant. In case the ratios are measured in market values, we find the opposite results. However these results are insignificant. This finding is remarkable in terms of finance theory where market values are predominant. However, this result is in line with interview results of Cools (1993) who interviewed 50 CFOs of Dutch listed corporations. He finds that in 90% of the firms a target equity or debt ratio is formulated. Normally the ratio is total equity over total assets (52%). To the question of how a target equity ratio should be defined all respondents answered that this should be in book values.

The average return on assets for equity issuing firms is 7.0%. For debt issuing firms the average return on assets is 9.8%. This indicates that debt issuing firms are significantly more profitable than equity issuing firms. Another interesting result from table 2 is that Dutch companies issue equity after periods of positive abnormal stock price performance. Debt is issued after periods of negative abnormal stock price performance. This confirms earlier findings by Asquith and Mullins (1986) and Jung, Kim and Stulz (1996) for US equity and by Dann and Mikkelson (1984), Mikkelson and Partch (1986) and De Roon and Veld (1998) for US and Dutch hybrid debt issues. The results are contrary to findings of Kang and Stulz (1996) and Kang, Kim, Park and Stulz (1995) for Japanese equity and hybrid debt issues. These studies do not find that Japanese companies issue equity or hybrid debt after periods of positive abnormal returns. The post issuance stock price performance is not significantly different between equity and debt issuing firms.

We performed logit regressions in which the debt/equity choice is explained by several potential determinants. The debt/equity choice is measured by a dummy variable with value of 1 for equity issues and 0 for debt. A positive estimate implies that firms that have higher values for the determinants are more likely to issue equity. The regression outcomes are presented in table 3.

[Please insert Table 3 here]

First we investigate the influence of a deviation from the target capital structure. In regression (1) the deviation from target has a significant positive coefficient. This confirms the static trade-off theory. It also confirms earlier results by De Jong and Van Dijk (1998). They have studied the capital structure of Dutch companies by sending out questionnaires to these companies in order to ask about the firm's

characteristics. Following this they have estimated a structural equations model with latent variables to test capital structure theories. One of their most important findings is that the static trade-off model offers a good explanation for the capital structure of Dutch companies. In regression (1) we included several control variables. The coefficient for past returns is significantly positive, indicating that firms time equity issues after a period of relative stock price increases. The dummy for frequent issuers shows a significant negative sign. These firms have a tendency to issue debt. The coefficient for issue size has a significant negative sign, indicating that larger issues are more likely to be debt issues. However, issue size relative to firm size has a significant positive sign. The pseudo R^2 is 41.8% and 83.4% of the issues are classified correctly. As Opler and Titman (1997) argue the deviation from target may be caused by accumulated past profits. The correlation between the deviation from target and return on assets is -0.36. Because of this correlation we cannot include both the deviation from target and profitability in a regression. However, we want to investigate whether the static model or dynamic models with hypotheses on profitability are most likely to explain the debt-equity choice. In regression (2) we specify an alternative model and we compare the explanatory power and correct predictions. We find that a higher return on assets significantly leads to the issuance of debt. The coefficient for free cash flow is insignificant. However, issue size and relative issue size are significant. In this model we do not find a confirmation for the role of growth opportunities. However, in (2) growth opportunities are specified as hypothesized in the adverse selection models. In the moral hazard model of Jensen (1986), growth opportunities interact with free cash flow, i.e. an overinvestment problem occurs if a firm has both low growth opportunities and free cash flow. In regression (3) we include an interaction term that measures growth opportunities as a fraction of the replacement value times the inverse of free cash flow. The larger this term, the less likely the presence of an overinvestment problem is. The coefficient for this term is insignificant. In (4) we omit return on assets, as this variable is related to both Tobin's Q and free cash flow. Note that in this regression the coefficient for free cash flow is significantly negative.

In our analysis we find a confirmation for the static model (H1). However, the explanatory power and the percentage of correct predictions are higher for specifications that represent dynamic models. We find that profitability leads to more debt (H2). This can be interpreted as evidence for the signalling model. However, this and other results may also be driven by moral hazard behavior of entrenched Dutch managers. Voluntarily disciplining (H8) is absent. Free cash flow is only significant if we exclude ROA (see equation 4), but in this case it is more likely to represent profitability. Tobin's Q is insignificant. We do find a confirmation for the avoidance of debt (H8a), i.e. a relationship between the threat of a bankruptcy and the preference for equity. In this theory profitable firms issue debt because they are less likely to lose control through bankruptcy. The significant results for frequent issuers, stock price run-up, issue size and relative issue size confirm this notion. The results indicate that profitable and large firms issue debt. Firm size is reflected in large absolute issue size and in small relative issue size. Equity issues

are made by small risky firms with a low profitability. These issues strengthen the equity base and lower the riskiness. The issues are relatively large and they are made after an increase in the stock prices. Following our expectations we do not find evidence for the adverse selection model. Slack is found to be non-significant (H4). Relative issue size is significantly positive, while it was hypothesized to be negative (H5). No relationship is found between growth opportunities and security issue choice (H7). We also find that frequent issuers are likely to issue debt. This is contrary to an interpretation of reduced asymmetric information (H3). The only result that may be interpreted as evidence for the adverse selection model is the finding that stock price run-ups are consistently related to equity issues (H6). However, the Lucas and McDonald (1990) model is not the only explanation for the phenomenon that firms issue equity after a stock price run-up. Opler and Titman (1997) offer some alternative explanations for this result that is also consistently found for the United States. Based on conversations with CEOs, CFOs and investment bankers they consider the possibility that managers issue equity after stock price run-ups because they believe that market prices are too volatile in relation to fundamentals. Another explanation follows the evidence provided by Loughran and Ritter (1995) that stock prices are mean reverting and that issuing firms take advantage of this to successfully time the market[11].

The explanatory power of the models is good, as compared to other studies. For example Jung, Kim, and Stulz (1996) have pseudo R^2's between 26% and 41%. In their models 74.6% to 80.8% of the issues are correctly classified. In regression (3) we have an pseudo R^2 of 48.4% and we classify 85.0% correct.

3. Wealth effects and its determinants

3.1 Theory on the wealth effects: hypotheses

According to the static model a choice of either debt or equity decreases the difference between the target and the actual equity ratio. For this reason an issue should always lead to a positive abnormal return, irrespective of the type of capital issued, but positively related to the absolute value of the deviation. (*H1: Abnormal return is positively related with absolute value of deviation from target.*)

In the signalling model of Ross (1977) debt signals profitability and will be associated with a positive abnormal return, while for equity a negative effect is expected. (*H2: Debt leads to positive abnormal return; for equity it is negative.*) In Miller and Rock (1985), financing and dividend decisions reflect changes in earnings. External financing may be due to a shortfall in earnings or unanticipated investment in valuable projects. The market reaction depends on which scenario is most likely. The

[11] See Opler and Titman (1997) for an extensive discussion of explanations for the tendency to issue equity after stock price run-ups.

presence of growth opportunities increases the likelihood of the investment-scenario and is expected to be associated with higher abnormal returns. (*H3: Growth opportunities affect abnormal returns positively.*)[12] Also firms can explicitly mention the earnings and/or new investment projects (acquisitions or capital expenditures). In the former case the market reaction depends on the difference between expectations and realizations. Of course, in this case the 'signal' of the issue is non-information in this setting. In the latter case the abnormal return will be affected positively (*H4: Explicitly announcing investments affect abnormal returns positively.*) Note that the models presented so for do not discriminate between debt and equity, it is the signal of additional financing that is important.

In the Myers and Majluf (1984) framework issues are interpreted by investors as bad news, because the firm is expected to be overvalued. This results in a stock price decrease, which is larger if the security is riskier. (*H5: Equity and debt leads to non-positive abnormal returns, and for equity the abnormal return is more negative.*) If a firm with slack issues debt or equity the investors are more likely to assume the firm is overvalued, because slack provides an alternative source of financing new projects. (*H6: Slack affects abnormal returns negatively.*) The adverse selection increases with the presence of information asymmetry. (*H7: Information asymmetry affects abnormal returns negatively.*) The problem decreases with the presence of investment opportunities. In the extreme case the effect will be zero.[13] Krasker (1986) generalizes the model of Myers and Majluf, by making the issue size a continuous variable. He shows that the abnormal return is negatively related to the size of the issue. (*H8: Size issue affects abnormal returns negatively.*) In the model of Lucas and MacDonald (1990) firms time issues. Therefore it is expected that after a stock price run-up firms raise new capital. The issue reveals the overpricing, and the run-up will be positively related to the stock price decrease. (*H9: The stock price run-up affects abnormal returns negatively.*) Viswanath (1993) derives a counter hypothesis. In this model the investors are expected to realize that the firm has a positive NPV project and they discount the value of this project. (*H9a: The stock price run-up affects abnormal returns positively.*)[14] Eckbo and Masulis (1992) describe that the adverse selection problems for equity can be reduced with the choice of the flotation method. In

[12] Ambarish, John, and Williams (1987) generalize the model of Miller and Rock (1985), and find that the stock price response depends on whether information asymmetry stems from assets in place or from growth opportunities. This leads to a negative or positive reaction respectively. The resulting hypothesis is that growth opportunities affect the stock price reaction positively.

[13] Cooney and Kalay (1993) extend the Myers and Majluf (1984) model by assuming that managers may also accept negative NPV projects. In their model, growth opportunities affect the stock price reactions positively. They may even lead to a positive effect in equity issues.

[14] In the model of Lucas and MacDonald (1990) the investors expected the project and react on the issue. In the Viswanath (1993) model the stock price run-up is an accumulation of growth opportunities and the issue enables managers to carry out the project.

the Netherlands we find three methods, i.e. standby rights offerings[15], firm commitment underwritten offerings, and private placements. Amongst these methods rights issues are dominant. The wealth effect depends on the fraction of new shares that will be owned by existing shareholders. If this fraction is larger, overvaluation is less likely to be the motive for the issue. In a rights offerings the existing shareholders are in the position to buy the new shares, while in a firm commitment underwritten offering new investors are more likely to be attracted. (*H10: For equity issues, the choice for an underwritten offering affects abnormal returns negatively.*)[16]

Jensen (1986) describes that the reaction to an issue depends on the expected purpose of the capital. As managers have incentives to increase the size of the firms, even with negative NPV projects, the growth opportunities and cash available determine the abnormal return. (*H11: Lack of growth opportunities and free cash flow affect abnormal returns negatively.*) The hypotheses are summarized in table 4.

[Please insert Table 4 here]

3.2 Data description and methodology

The announcement date is the first date at which the announcement appears in the Dutch financial newspaper *Het Financieele Dagblad*[17]. From our original sample of 110 issues of public and private equity and 137 issues of public debt, we can not find an announcement date for 11 equity issues and 39 debt issues. From the remaining sample we eliminate 10 equity issues because the announcement of these issues was accompanied by the announcement of the issuance of other securities. Furthermore 5 equity issues are eliminated because they are announced together with a complete financial reorganization. Therefore we are able to use 98 debt issues and 84 equity issues. Stock price data are derived from Datastream. The announcement effects of the equity and bond issues are measured using a standard event study methodology as described in Brown and Warner (1985). Excess returns are measured using an

[15] In a standby rights offering the underwriter guarantees the proceeds on any unsubsribed shares. All Dutch rights offerings are standby rights offerings.

[16] It should be noted that a more precise test of the impact of the flotation method involves at least the following two aspects. First, the choice of the flotation method is not necessarily known when the issue is announced. Therefore, a future study that investigates the abnormal returns of the announcements of the flotation method may yield additional insights. Second, in case of rights issues, the trading volume of the rights is informative about the fraction of new shares that will be owned by the existing shareholders. An investigation of the abnormal returns in the period of rights trade related to the trading volume will be an additional test of the hypotheses of Eckbo and Masulis (1992).

[17] We either use the electronic (on-line) version (for the issues from 1985) or the hard copy version (for the issues before 1985).

Ordinary Least Squares market model regression:

$$A_{i,t} = R_{i,t} - \hat{\beta}_{0,i} - \hat{\beta}_{1,i} R_t^M , \qquad \textbf{(1)}$$

where $A_{i,t}$ is the abnormal return for firm i at day t, $R_{i,t}$ denotes the return on security i at day t, defined as $\ln(P_{i,t}) - \ln(P_{i,t-1})$, and R_t^M is the return on the market index, that is measured in a similar way as $R_{i,t}$. The market index chosen is the Datastream index for the Dutch market, since this is the only index for which data are available for the whole sample period. The parameters $\hat{\beta}_0$ and $\hat{\beta}_1$ are estimated over the estimation period by running an OLS regression of the stock returns on a constant and the return on the market index. Denoting the announcement date as day 0, this estimation period ranges from day -120 to day -20. The event window ranges from day -1 to day +1. The test statistic is calculated using the methodology outlined by Brown and Warner (1985, page 7) and is defined as:

$$\bar{A}_t / \hat{s}(\bar{A}_t), \qquad (2)$$

where $\bar{A}_t$ is the average abnormal return over the N different firms on day t and $\hat{s}(\bar{A}_t)$ is the standard deviation of the average abnormal return obtained from the estimation period. The null-hypothesis is that the abnormal return is zero. If the null-hypothesis holds and if the abnormal returns are independently identically distributed with finite variance, the test-statistic is asymptotically normally distributed. Besides calculating excess returns for each day in the event period, we also calculate cumulative average abnormal returns[18].

3.3 Proxies

Most of the variables that determine the choice for debt or equity are also relevant as determinants of the wealth effects of the security issue choice. The variables for *profitability*, *slack*, *free cash flow*, *issue size*, *stock price run-up*, *frequency* and *growth opportunities* are the same as the variables used in the logistic regressions. The *deviation from target* measures the deviation of the actual equity ratio from the expected equity ratio, measured in book values. This variable was also shown to be relevant in the logit analysis. Also a dummy is included for the *issuance towards target*. This dummy is one if the issue moves the actual equity ratio towards the target and zero otherwise.

Information provided with the announcement. De Roon and Veld (1998) study wealth effects for Dutch convertible bonds and warrant-bonds. They find that in a large number of cases Dutch companies package announcements of hybrid debt issues in other (good) firm specific news. For this reason we check in the Dutch financial newspaper *Het Financieele Dagblad* on the announcement day whether the issue

[18] In calculating the test statistic for the cumulative abnormal returns it is assumed that excess returns are not autocorrelated, so that the variance of a two-day excess return is just the sum of the variances of the corresponding one day returns.

was contaminated by the presentation of other firm specific news. The following types of contaminating information were identified:

- issue announcements made together with the presentation of the annual results of the company (= annual earnings);
- issue announcements accompanied by the presentation of the updated provisional results for the current year (= current earnings);
- issue announcements accompanied by news that the company has just completed an acquisition (= acquisition) and/or
- issue announcements made together with other firm specific news, such as a stock split, a large order etc. (= strategic information).

In all other cases the issue is classified as uncontaminated. We notice that eliminating all contaminating issues, like is done for other studies, is not possible since practically all equity issues in our sample are contaminated.

Purpose of the issue. Following Jung, Kim and Stulz (1996) we also checked in *Het Financieele Dagblad* whether the purpose of the issue was mentioned. Jung, Kim and Stulz (1996) identify the following purposes:

- capital expenditures;
- repayment of long term debt;
- repayment of short term debt and/or
- repayment of bank debt.

In addition we also include acquisition as a possible purpose. In a number of cases the company mentions that it will use at least a part of the proceeds of the issue to finance an acquisition announced on the same day (see the previous paragraph), an earlier announced acquisition, or a yet unidentified acquisition.

We include both the information provided with the announcement and the purpose of the issue in the regressions[19]. We include a dummy for *acquisition information*. This dummy is one if the announcement of the equity or debt issue is done together with the announcement of a recently completed acquisition and zero otherwise. Dummies are also included for two different *purposes* of the issue: *capital expenditures* and *repayment of short term debt*. Finally we include a dummy if the company reveals that it wants to use at least a part of the proceeds for *future acquisitions*, which are yet unidentified. In all cases the dummy is one if the specific purpose is mentioned and zero otherwise.

Flotation method. The dominant flotation method in the Netherlands are rights issues (59% of the equity issues). We also have private placements of common equity (18%) and cumulative preferred stock

[19] Jung, Kim and Stulz (1996) also divide their sample according to the purpose of the issue. However, they do not include this information as variables in the regressions.

(5%). The remainder are firm commitment underwritten offerings (17%), which are often foreign issues.

Expected type or issues 'against' type. On the basis of the logit analysis it is possible to compare the predicted security type with the type of security that is actually being used[20]. We include a dummy variable for correctly predicted security type that is one if the issue was predicted correctly with regression (3) in table 3, and zero otherwise.

3.4 Results

In table 5 univariate results are described. For equity and debt issues we compare the cumulative average abnormal returns of the announcements.

[Please insert Table 5 here]

Announcements of equity issues on average lead to a slightly significant negative abnormal return of -1.07%, while debt issues lead to an insignificantly positive abnormal return of 0.51%. These results are in accordance with the signalling and moral hazard models. A further investigation of the stock price reactions should help us to distinguish between these models.

First it can be remarked that practically all debt issues in our sample are uncontaminated. The few contaminated debt issues do not give other results than the uncontaminated issues. Contrary to the debt issues, the equity issues are practically all contaminated. The equity issues that are uncontaminated and the equity issues that are announced together with the annual results of the company are associated with negative abnormal returns of respectively -2.35% and -2.96%. Equity issues announced together with an update of the provisional results of the current year are associated with a non-significant negative abnormal return of -0.17%. This confirms the finding by De Roon and Veld (1998) that companies deliberately package their security announcements in good news. In 19 cases, the equity issue is announced together with the completion of an acquisition. This joint event is associated with a significant positive abnormal return of 2.08%. This can be interpreted as evidence for the signalling model (H4). The explicit announcement of the investment affects the abnormal returns positively.

A closer look at the purpose of the acquisition reveals that in 35 cases the company indicates that it will use (part of) the proceeds of the issue in order to finance acquisitions. These issues are associated with a non-significant negative abnormal return of -0.22%. This result is remarkable if we look at the positive reaction on the simultaneous announcement of a completed acquisition and an equity issue. A further investigation of the 35 issues reveals that in 16 cases the company indicates that it wants to use at least a part of the proceeds for future acquisitions. The cumulative average abnormal return for these 16 cases is -2.72% with a t-value of -2.29. As this is a clear case of managerial discretion, this negative return can be interpreted as evidence for the moral hazard model.

[20] See e.g. Bayless and Chaplinsky (1991) and Jung, Kim and Stulz (1996).

The flotation method of the equity issue yields minor differences between the subsamples. As explained before, this may be due to a lack of information. Either on the flotation method at the announcement date of the issue or, in case of a rights issue, on the future rights selling by existing shareholders.

In order to test for other characteristics that influence abnormal returns, we perform regressions in which the cumulative abnormal return is explained by firm and issue characteristics. We correct for firm-specific risk by applying weighted least squares regressions, in which the dependent and independent variables are divided by the standard error from the market model in the estimation period.

The regression results are included in table 6.

[Please insert Table 6 here]

This table does not provide a confirmation for the static trade-off model (H1), since the dummy variable for movement towards target is insignificant for both equity and debt issues. We also do not find a confirmation for the adverse selection model. Slack and growth opportunities are not significant and the sign for relative issue size is, in contrast to the expectation, significantly positive (H6, H3 and H8).

The signalling and the moral hazard models both seem to have explanatory power. For debt issues, the signalling model is confirmed by the finding that mentioning the repayment of short term debt as a purpose positively influences the abnormal returns (H4). A slight confirmation for the moral hazard model can be found in the positive sign for free cash flow that is accompanied by a t-statistic of 1.17. This finding is not unexpected, because in the logit analysis we find that only managers of profitable firms choose to issue debt. Thus, the disciplinary power of debt is less. We expect the market judgement of moral hazard behavior to be present in the equity issues. For the debt issues, the results are dominated by size effects. Firm size has a negative impact. This implies that the abnormal returns are smaller for large firms due to a scale effect. However, relative issue size also has a negative effect. This implies that according to the market, the marginal benefits of debt, either as a signalling or as a disciplinary device, are decreasing.

For equity issues, both signalling and moral hazard can be found in the results. If the firm announces the issue together with the completion of an acquisition the returns are positively affected. The reason for this is that the firm explicitly signals the availability of a project. The joint announcement is also good news from a moral hazard point of view, because investors are able to judge the purpose of the issue. This purpose is less likely to be overinvestment, i.e. empire building. The use of funds for future acquisitions gives the expected negative sign, however this effect is not significant. The difference in effects between announcing a completed acquisition and announcing that at least part of the funds will be used to finance a future acquisition can be considered as evidence for the moral hazard model. Additional evidence for this model can be found in the negative sign for free cash flow that is accompanied by a t-value of -1.35. Other information about the availability of project is less clear. Tobin's Q is highly

insignificant. The past returns, which can be interpreted as a rough approximation of the increase in growth opportunities, have the correct sign, with a t-value of 1.55. It is more important that investors make a judgement about the future profitability of the new funds. This explains the positive impact of the return on assets. We also find a size effect to be present, i.e. relative issue size affects the abnormal returns positively. This may be driven by the very large issues of the firms that announced acquisitions (16.3% as compared to 8.2% for the other firms).

4. Summary and conclusions

In finance literature a large amount of empirical evidence on capital structure theory is available. This evidence is largely restricted to the United States. In terms of managerial decision making the United States are characterized by managers who are strongly disciplined by capital markets. If these managers do not succeed in maximizing shareholder value, it si likely that their companies will be taken over by other companies. Such a situation does not exist in the Netherlands. In this country practically all companies have adopted multiple takeover barriers. These are primarily directed to limit the influence of common shareholders. This situation makes the case for capital structure decisions of Dutch companies particularly interesting.

We study four capital structure theories: the static trade-off model, the signalling model, the moral hazard model and the adverse selection model. The last mentioned model assumes that managers act in the interest of existing shareholders. Because of the existence of entrenched managers, and because of the dominant role of rights issues in the Netherlands, it can be expected that the adverse selection model will not be relevant for the Dutch situation. The theories are tested on a sample of 110 issues of public and private seasoned equity and 137 public issues of straight debt. We look at the motives for the company to choose equity or debt and we study the wealth effects of these security issues.

We find strong evidence that Dutch companies issuing equity move towards a target equity ratio (based on book values). This can be considered as evidence for the static trade-off theory. We also find evidence for dynamic capital structure models. A positive relationship exists between profitability and the issuance of debt. This can be interpreted as evidence for the theory of Ross (1977) that debt is used as a signal for quality. As expected we do not find evidence for the adverse selection model. Furthermore we do not find evidence for the disciplining role of debt in the overinvestment theory. On the contrary, the results indicate that managers avoid debt when this is most disciplining, i.e. in case of lower profitability.

A study of the wealth effects shows that the issuance of debt is associated with an insignificant return. This confirms empirical research for the United States. An equity issue is associated with a significant negative abnormal return of -1.07%. A further investigation of the determinants of the abnormal returns gives evidence for the signalling and the moral hazard models. We do not find evidence

for the adverse selection model.

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Table 1: Summary of the hypotheses for the debt-equity choice

Static trade-off models
H1: Actual equity ratio< target equity ratio induces equity
Signalling models
H2: Profitability induces debt [Ross (1977), Leland and Pyle (1977), static trade-off model]
Adverse selection models
H3: Asymmetric information induces debt [Myers and Majluf (1984), Viswanath (1993)]
H4: Slack induces debt [Myers and Majluf (1984)]
H5: Issue size induces debt [Krasker (1986)]
H6: Stock price run-up induces equity [Lucas and McDonald (1990), Viswanath (1993)]
H7: Growth opportunities induce equity [Cooney and Kalay (1993), Viswanath (1993)]
Moral hazard models
H8: Lack of growth opportunities and free cash flow induce debt [Jensen (1986)]
H8a: Threat of bankruptcy (i.e. inverse of profitability) induces equity [Zwiebel (1996)]

Table 2: Firm and issue characteristics for the 110 equity and 137 debt issues of Dutch companies from 1977 to 1996.

	Average equity issuing firm	Standard deviation equity issuing firm	Average debt issuing firm	Standard deviation debt issuing firm	Average difference equity and debt issuing firms	p-value
Static model						
Deviation of actual equity ratio from:						
- expected eq. ratio (book)	0.058	0.116	0.019	0.082	0.040	0.002
- expected eq. ratio (market)	0.055	0.115	0.063	0.122	-0.008	0.618
- long term average (book)	0.012	0.081	-0.003	0.048	0.015	0.082
- long term average (market)	-0.066	0.115	-0.053	0.076	-0.012	0.334
Dynamic models						
Operation income over total assets (ROA)	7.007	8.553	9.844	4.974	-2.837	0.001
Cash and liquid assets/firm book value	0.058	0.055	0.063	0.045	-0.006	0.364
Free cash flow (operating income minus taxes, interest and dividends/market value of equity)	-0.008	0.248	0.049	0.101	-0.057	0.015
Log of issue size	4.126	1.497	5.085	0.791	-0.958	0.000
Issue size over book value	0.096	0.122	0.025	0.028	0.072	0.000
Past 12 months excess return	0.160	0.319	-0.047	0.260	0.207	0.000
Post 12 months excess return	-0.017	0.381	0.006	0.239	-0.023	0.561
Tobin's Q	1.091	0.341	1.044	0.479	0.048	0.382
Size						
Book value total assets	4626.455	10963.183	18367.920	17022.568	-13741.465	0.000

Table 2: continued

Firm characteristics for the 110 equity and 137 debt issues of Dutch companies from 1977 to 1996. Expected equity ratios are from the OLS-regressions outlined in Appendix 1. The long term average equity ratios are based on the 10-year period preceding the issue. Return on assets is operating income over total assets. Total assets is measured in book values. The past and post 12-month excess return are measured as the difference between the stock return and the market return over a period of 12 months before and after the issue, respectively. Tobin's Q is the market value of equity plus the book value of debt divided by the replacement value of the assets. All book values are obtained from the data-set of the Dutch Central Bureau of Statistics containing data of listed non-financial firms with annual reports since 1974.

Table 3: Logit analysis for the debt-equity choice of Dutch companies

	(1)	(2)	(3)	(4)
Intercept	2.29***	3.95***	3.13***	2.96***
	(2.73)	(3.86)	(2.81)	(2.76)
Deviation from target	3.64*	-	-	-
	(1.73)			
Return on assets	-	-0.13**	-0.13**	-
		(-2.00)	(-1.99)	
Cash and liquid assets/	-	-3.34	-2.15	-2.73
Total assets		(-0.89)	(-0.55)	(-0.70)
Past 12 month excess return	2.02***	2.48***	2.46***	2.67***
	(3.04)	(3.46)	(3.37)	(3.65)
Tobin's Q	-	-0.56	0.29	-0.58
		(-0.92)	(0.37)	(-0.90)
Free cash flow	-	-1.18	-1.24	-3.16**
		(-0.84)	(-0.87)	(-2.54)
Total assets	$1.67x10^{-5}$	$3.04x10^{-5}$	$2.54x10^{-5}$	$2.42x10^{-5}$
	(0.99)	(1.65)	(1.39)	(1.34)
Frequent issuer	-0.81*	-1.14**	-1.09**	-0.94**
	(-1.82)	(-2.41)	(-2.28)	(-2.04)
Log(issue size)	-0.83***	-0.85***	-0.89***	-0.85***
	(-3.77)	(-3.61)	(-3.53)	(-3.73)
Issue size/	31.07***	40.24***	38.07***	38.81***
Total assets	(4.23)	(4.48)	(4.41)	(4.47)
(1-Q) x (1/free cash flow)	-	-	-0.02	-0.02
			(-1.58)	(-1.58)
logL	-98.75	-89.27	-87.52	-89.69
pseudo R^2	41.82%	47.41%	48.43%	47.16%
% correct	83.40%	84.62%	85.02%	84.21%
% equity correct	76.35%	81.82%	81.82%	81.82%
% debt correct	89.05%	86.86%	87.59%	86.13%
number of observations	247	247	247	247

Table 3: continued

Logistic regressions in which the dependent variable takes the value one for equity issues and zero for debt issues. The sample has 110 equity issues and 137 debt issues by Dutch companies from 1977 to 1996. Deviation from target is the deviation of the actual equity ratio from the expected equity ratio according to the OLS-regression in Appendix 1. Both the actual equity ratio and the target equity ratio are in book values. Return on assets is operating income over total assets. Total assets is measured in book values. The 12-month excess return is measured as the difference between the stock return and the market return. Tobin's Q is the market value of equity plus the book value of debt divided by the replacement value of the assets. Free cash flow is operating income minus taxes, interest expenditures and dividends paid divided by the market value of equity. Frequent issuer is a dummy variable that has a value of one for firms that have more than 10 issues in the 20-year period and zero otherwise. All book values are obtained from the data-set of the Dutch Central Bureau of Statistics containing data of listed non-financial firms with annual reports since 1974. The pseudo R^2 equals 1-(log-likelihood at convergence/log-likelihood at zero). t-statistics are in parentheses. *** is significant at 1% level, ** at 5%, and * at 10%.

Table 4: Summary of the hypotheses for the wealth effects of the debt and equity issues

Static trade-off models	
H1:	Abnormal return is positively related with absolute value of deviation from target.
Signalling models	
H2:	Debt leads to positive abnormal return; for equity it is negative. [Ross (1977)]
H3:	Growth opportunities affect abnormal returns positively.
H4:	Explicitly announcing investments affect abnormal returns positively. [Miller and Rock (1985), Ambarish, John, and Williams (1987)]
Adverse selection models	
H5:	Equity and debt leads to nonpositive abnormal returns, and for equity the abnormal return is more negative.
H6:	Slack affects abnormal returns negatively.
H7:	Information asymmetry affects abnormal returns negatively. [Myers and Majluf (1984)]
H3:	Growth opportunities affect abnormal returns positively. [Cooney and Kalay (1993)]
H8:	Size issue affects abnormal returns negatively. [Krasker (1986)]
H9:	The stock price run-up affects abnormal returns negatively. [Lucas and MacDonald (1990)]
H9a:	The stock price run-up affects abnormal returns positively. [Viswanath (1993)]
H10:	For equity issues: the choice for underwritten offerings affects abnormal returns negatively [Eckbo and Masulis (1992)]
Moral hazard models	
H11:	Lack of growth opportunities and free cash flow affect abnormal returns negatively for equity and positively for debt. [Jensen (1986) and Zwiebel (1996)]

Table 5: Wealth effects of the debt and equity issues by Dutch companies

	Debt	Obs.	Equity	Obs.
Total sample	0.51	98	-1.07*	84
	(0.95)		(-1.66)	
	[-0.20]		[-0.98]	
Contaminated:				
annual earnings	-		-3.00***	17
	-		(-2.49)	
	-		[-2.51]	
current earnings	-		-0.17	51
	-		(-0.24)	
	-		[-0.16]	
acquisitions	-		2.08	19
	-		(1.90)*	
	-		[1.50]	
Uncontaminated	0.43	89	-2.35	8
	(0.79)		(-1.09)	
	[-0.20]		[-1.49]	
Purpose:				
acquisition	-		-0.22	35
	-		(-0.28)	
	-		[0.34]	
capital expenditures	2.408	10	-1.24	13
	(1.57)		(-0.63)	
	[0.46]		[-2.885]	
repay short term debt	1.84	8	-	
	(1.02)		-	
	[0.46]		-	
No purpose	0.29	82	-1.66	39
	(0.49)		(-1.96)**	
	[-0.22]		[-0.98]	
Flotation method (only equity):				
rights issue			-1.46*	51
			(-1.97)	
			[-0.97]	
private placement			-1.94	11
			(-1.21)	
			[-0.98]	
underwritten offering			-0.41	17
			(-0.28)	
			[-1.49]	

Table 5: continued

The sample includes 98 announcements of share issues and 84 announcements of bond issues by Dutch companies between January 1, 1977 and December 31, 1996. The table contains cumulative average abnormal returns for the period of days -1 and +1. Day 0 is the day on which the announcement is published in *Het Financieele Dagblad*. The abnormal returns are calculated using the standard event study methodology as outlined by Brown and Warner (1985). t-values are in parentheses, medians are in brackets. Subsample results are reported for the nature of the other news reported together with the issue and the purpose of the issue. Results are not reported for cells smaller than 8. *** is significant at the 1% level, ** at 5%, * at 10%; also reported are (t-values) and [medians].

Table 6: Weighted least squares regression results of firm and issue characteristics on abnormal return of debt and equity issues

	(1) Debt	(2) Equity
Intercept	-0.029 (-1.06)	0.006 (0.14)
Return on assets	-0.001 (-0.74)	0.003** (2.41)
Cash and liquid assets/ total assets	0.043 (0.50)	-0.004 (-0.03)
Past 12 month excess return	0.012 (0.98)	0.033 (1.55)
Tobin's Q	0.015 (1.02)	-0.030 (-0.91)
Free cash flow	0.064 (1.17)	-0.069 (-1.36)
Total assets	-1.14×10^{-6}*** (-3.14)	0.93×10^{-6} (0.94)
Log(issue size)	0.011 (1.60)	-0.007 (-1.21)
Issue size/total assets	-0.426** (-2.13)	0.190*** (2.86)
Acquisition announcement	-	0.053** (2.63)
Future acquisitions	-	-0.008 (-0.41)
Purpose is capital expenditures	0.008 (0.50)	-0.008 (-0.38)
Purpose is repayment of short term debt	0.053*** (2.90)	-
Frequent issuer	-0.004 (-0.32)	0.012 (0.42)
Towards target	0.004 (0.39)	0.001 (0.06)
Predicted correctly	-0.003 (-0.17)	-0.015 (-0.55)
adjusted R^2	0.15	0.20
number of observations	98	84

Table 6: continued

The sample includes 98 announcements of share issues and 84 announcements of bond issues by Dutch companies between January 1, 1977 and December 31, 1996. Day 0 is the day on which the announcement is published in *Het Financieele Dagblad*. The dependent variable is the cumulative abnormal return for announcement i for day -1 to day +1, which is calculated using the standard event study methodology as outlined in Brown and Warner (1985). Return on assets is operating income over total assets. Total assets is measured in book values. The 12-month excess return is measured as the difference between the stock return and the market return. Tobin's Q is the market value of equity plus the book value of debt divided by the replacement value of the assets. Free cash flow is operating income minus taxes, interest expenditures and dividends paid divided by the market value of equity. Frequent issuer is a dummy variable that has a value of one for firms that have more than 10 issues in the 20-year period and zero otherwise. The target ratio is defined as the target based on book values according to the cross-sectional regression outlined in appendix 1. Information on whether the issue is predicted or not is derived from the logistic regression (equation 3 in table 3). *** is significant at 1% level, ** at 5%, and * at 10%.

Appendix 1: Determinants of the equity ratio

Our data set contains annual report and stock market data of the Dutch listed non-financial firms in the *CBS* database for 1976-1995 for which the variables in table A1 are available.

Table A1: Equity ratio and determinants

EQ_BV	=	equity ratio in book values: book value of equity divided by book value of total assets;
EQ_MV	=	equity ratio in market values: market value of equity divided by market value of total assets;
TGA_BV	=	tangible, fixed assets plus inventory, divided by book value of total assets;
TGA_MV	=	tangible, fixed assets plus inventory, divided by market value of total assets;
BETA_UNL	=	unlevered beta based on weekly returns and Datastream index for the Dutch market;
LN_SLS	=	log of annual sales;
DEP_BV	=	depreciation divided by book value of total assets;
DEP_MV	=	depreciation divided by market value of total assets.

The variables in table A1 are chosen with the importance of preventing distress and using tax benefits in mind. The variable for tangibility of the assets is inversely related to bankruptcy costs. Unlevered beta measures business risk, which invokes bankruptcy risks. Size, i.e. the log of sales is inversely related to risk. Depreciation is a non-debt tax shield. We perform OLS regressions with dummies for the years and industries in order to take time-specific and industry-specific elements (tax, regulation, macro-economic factors, etc.) into account. The dummies are not reported. The t-statistics are heteroscedasticity-consistent. The results are in table A2.

Table A2: Cross-section regression results (t-values in parentheses)

	EQ_BV		EQ_MV	
CONSTANT	0.3962	(17.47)	0.4107	(22.21)
TGA_BV	-0.1186	(-5.05)		
TGA_MV			-0.2742	(-17.01)
BETA_UNL	0.1994	(8.46)	0.3984	(18.80)
LN_SLS	-0.0239	(-10.81)	-0.0207	(-13.75)
DEP_BV	0.9852	(7.09)		
DEP_MV			0.3957	(3.97)
adjusted R^2	0.21		0.62	
obs	2405		2405	

The results in table A2 confirm the impact of distress. Tangible assets, business risk and size are significantly related to the equity ratio, with a sign as expected. Depreciation approximates the non-debt tax shields. With the coefficients in table A2 we estimate the target equity ratio, by multiplying the coefficients with the values for the variables in the year preceding the issue.